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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/951,201	10/14/1997	WILLIAM M. WOODARD	33470US	1323

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EXAMINER	
NECKEL, ALEXA DOROSHENK	
ART UNIT	**PAPER NUMBER**
1764	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/951,201	WOODARD ET AL.	
	Examiner	Art Unit	
	Alexa D. Neckel	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4 and 28-35* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 28-33 and 35 continue to be rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The subject matter which was not described in the specification is that directed toward a "loop reactor".

Applicant states that support for this amendment, in addition to the previously cited and discussed p. 18, lines 7-8, can be found on page 15, lines 1-4. This passage of the specification states:

> "Reaction products, i.e., olefin timers as disclose in this specification, can be prepared with the disclosed catalyst systems by solution reaction, slurry reaction, and/or gas phase reaction techniques using conventional equipment and contacting processes."

Besides the term "loop" not being found in the specification, the examiner does not find this to be sufficient support for the newly added limitations of a "loop" reactor. While such a recitation may enable a "loop" reactor, it does not provide support limiting the invention to a loop reactor.

For examination purposes, by the cited support for the limitation it appears that applicant is attempting to equate the term "loop reactor" with a continuous reactor and the claims have been treated as such.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 28, 29, 31 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Avidan et al. (4,778,661).

With respect to claims 28 and 34 Avidan et al. discloses an apparatus comprising:

a loop/continuous (col. 1, lines 8-12 and col. 2, lines 34-39) reactor (2) of solution, slurry or gas phase (col. 6, lines 23-30);

a first inlet line (23) for olefin reactant (inherently connected to a source of that olefin);

a second inlet line (14) for catalyst operably connected to a source of catalyst (13);

wherein said first and second inlet lines are separate from one another (see figure 1) and located in the reactor to provide contact within the reactor of the materials they carry (col. 6, line 59- col. 7, line 3);

an effluent line (46) from the reactor for transferring olefin, catalyst and reaction products (col. 7, lines 23-26); and

a separator (50) connected to the effluent line (46) after discharge from the reactor to separate desire products such as catalyst and reaction products (col. 7, lines 29-32).

With further respect to the limitation of a loop reactor, though applicant does not have support for a reactor of an actual loop formation, it is noted that the reactor of Avidan et al. does comprise a loop by way of elements 10, 12, 13, 14 and 16.

With respect to the limitation in claims 34-36 of a homogeneous or homogeneous liquid catalyst system, it is held by the examiner that this terminology indicates the nature of the catalyst in the apparatus. The material or article worked upon does not limit apparatus claims. MPEP 2115.

With respect to claim 29, Avidan et al. discloses wherein a filter can be operably connected into the effluent line (col. 8, lines 62-65).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 2, 4 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Avidan et al. (4,778,661) in view of Lashier et al. (5,689,028) and Reagen et al. (5,376,612).

With respect to claim 1 and 35, Avidan et al. discloses an apparatus comprising:

a loop/continuous (col. 1, lines 8-12 and col. 2, lines 34-39) reactor (2) of solution, slurry or gas phase (col. 6, lines 23-30);

a first inlet line (23) for olefin reactant (inherently connected to a source of that olefin);

a second inlet line (14) for catalyst operably connected to a source of catalyst (13);

wherein said first and second inlet lines are separate from one another (see figure 1) and located in the reactor to provide contact within the reactor of the materials they carry (col. 6, line 59- col. 7, line 3);

an effluent line (46) from the reactor for transferring olefin, catalyst and reaction products (col. 7, lines 23-26); and

a separator (50) connected to the effluent line (46) after discharge from the reactor to separate desire products such as catalyst and reaction products (col. 7, lines 29-32).

With further respect to the limitation of a loop reactor, though applicant does not have support for a reactor of an actual loop formation, it is noted that the reactor of Avidan et al. does comprise a loop by way of elements 10, 12, 13, 14 and 16.

The apparatus of Avidan et al. discloses all of the structural elements as described above, but does not disclose an inlet for catalyst system deactivator.

Lashier et al. discloses a process to regulate olefin production in which a catalyst comprising a chromium source, a pyrrole-containing compound and a metal alkyl (col. 1, lines 55-59) is deactivated in the reactor effluent stream (col. 5, line 65- col. 6, line 21).

Lashier et al. disclose that the reaction products can be prepared from a conventional gas phase catalyst system (col. 4, line 65- col. 5, line 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an inlet for catalyst deactivator into the effluent stream of Avidan et al. gas phase catalyst system in order to regulate the production of olefin during trimerization once it has left the reactor.

Avidan et al. is silent as to an inlet line for catalyst connected to a source of trimerization reaction solvent nor a homogeneous liquid catalyst system.

Reagen et al. teaches a catalyst to trimerize, oligomerize or polymerize olefins provides useful olefins by increased selectivity (col. 1, lines 18-40) and teaches wherein such a catalyst can be a homogenous liquid catalyst system (col. 60, lines 11-35) which has been mixed with a solvent (cyclohexane). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the catalyst system of Reagen et al. for the catalyst of Avidan et al. in order to achieve increased selectivity of reaction product.

With respect to claim 2, Avidan et al. discloses wherein a filter can be operably connected into the effluent line (col. 8, lines 62-65).

With respect to claim 4, it would be inherent in the apparatus to have a line with which a source of olefin is connected to the olefin inlet line (23) in order to satisfy the requirement of providing olefin.

7. Claims 28, 29, 31 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Avidan et al. (4,778,661).

With respect to claims 28 and 34 Avidan et al. discloses an apparatus comprising:

a loop/continuous (col. 1, lines 8-12 and col. 2, lines 34-39) reactor (2) of solution, slurry or gas phase (col. 6, lines 23-30);

a first inlet line (23) for olefin reactant (inherently connected to a source of that olefin);

a second inlet line (14) for catalyst operably connected to a source of catalyst (13);

wherein said first and second inlet lines are separate from one another (see figure 1) and located in the reactor to provide contact within the reactor of the materials they carry (col. 6, line 59- col. 7, line 3);

an effluent line (46) from the reactor for transferring olefin, catalyst and reaction products (col. 7, lines 23-26); and

a separator (50) connected to the effluent line (46) after discharge from the reactor to separate desire products such as catalyst and reaction products (col. 7, lines 29-32).

With further respect to the limitation of a loop reactor, though applicant does not have support for a reactor of an actual loop formation, it is noted that the reactor of Avidan et al. does comprise a loop by way of elements 10, 12, 13, 14 and 16.

With respect to the limitation in claims 34-36 of a homogeneous or homogeneous liquid catalyst system, it is held by the examiner that this terminology indicates the

nature of the catalyst in the apparatus. The material or article worked upon does not limit apparatus claims. MPEP 2115.

With respect to claim 29, Avidan et al. discloses wherein a filter can be operably connected into the effluent line (col. 8, lines 62-65).

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Avidan et al. (4,778,661) in view of Lashier et al. (5,689,028).

The apparatus of Avidan et al. discloses all of the structural elements as described above, but does not disclose an inlet for catalyst system deactivator.

Lashier et al. discloses a process to regulate olefin production in which a catalyst comprising a chromium source, a pyrrole-containing compound and a metal alkyl (col. 1, lines 55-59) is deactivated in the reactor effluent stream (col. 5, line 65- col. 6, line 21). Lashier et al. disclose that the reaction products can be prepared from a conventional gas phase catalyst system (col. 4, line 65- col. 5, line 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an inlet for catalyst deactivator into the effluent stream of Avidan et al. gas phase catalyst system in order to regulate the production of olefin during trimerization once it has left the reactor.

9. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Avidan et al. (4,778,661) in view of Reagen et al. (5,376,612).

Avidan et al. is silent as to an inlet line connected to a source of trimerization Avidan et al. is silent as to an inlet line for catalyst connected to a source of trimerization reaction solvent nor a homogeneous liquid catalyst system.

Reagen et al. teaches a catalyst to trimerize, oligomerize or polymerize olefins provides useful olefins by increased selectivity (col. 1, lines 18-40) and teaches wherein such a catalyst can be a homogenous liquid catalyst system (col. 60, lines 11-35) which has been mixed with a solvent (cyclohexane). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the catalyst system of Reagen et al. for the catalyst of Avidan et al. in order to achieve increased selectivity of reaction product.

Allowable Subject Matter

10. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claim 32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: The prior art neither teaches nor suggests the apparatus claims wherein an inlet line connected to the reactor effluent line from a source of heavies.

Response to Arguments

35 USC §112

Applicant continues to argue that their specification supports the limitation of a "loop" reactor.

The examiner respectfully disagrees with applicant. While the recitation of "conventional equipment" may enable a "loop" reactor, it does not provide support limiting the invention to a loop reactor.

Since the written description does not use precisely the same terms used in the claim, the question is whether the specification directs or guides one skilled in the art to the subject matter claim. See, eg., Fujikawa v. Wattanasin, 93 F.3d 1559, 1570, 39 USPQ2d 1895, 1904 (Fed. Cir. 1996). The written description requirement has been analyzed such that the written description direct one to the claimed subject matter in the way that "blazemarks" on specific trees mark a trial through a forest. See In re Ruschig, 379 F.2d 990, 994-95, 154 USPQ 118, 122 (CCPA 1967). It found that a broad generic disclosure failed to constitute a description of a specific claimed compound. See Fujikawa, 93 F.3d at 1571, 39 USPQ2d at 1905 ("in the absence of [ ] blazemarks [that the claimed compounds were of special interest], simply describing a large genus of compounds is not sufficient to satisfy the written description requirement as to a particular species or subgenuses."). That direction must be expressed in "full, clear, concise, and exact" language. See Fields v. Conover, 443 F.2d 1386, 1391, 170 USPQ 276, 280 (CCPA 1971); In re Ahlbrecht, 435 F.2d 908, 911, 168 USPQ 293 (CCPA 1971); Ruschig, 379 F.2d at 996, 154 USPQ at 123.

In this instance, the general description of "conventional equipment" is not accompanied by any language which would direct one of ordinary skill in the art to the particular equipment of a loop reactor.

35 USC 102(b)

Applicant continues to argue the lack of a "loop reactor". The 35 USC 112, first paragraph rejection regarding this matter is maintained and addressed above.

Applicant argues that Avidan does not meet the limitation of section d) of claim 28, wherein separation of catalyst occurs after discharge from the reactor into the effluent line.

The examiner respectfully disagrees. It is noted that only a process step is recited and not a structural limitation. The manner of operating a device does not differentiate apparatus claims form the prior art. MPEP 2114.

35 USC 103

Applicant continues to argue the lack of a "loop reactor". The 35 USC 112, first paragraph rejection regarding this matter is maintained and addressed above.

Applicants arguments with regard to Mehra are persuasive, but it is noted that Reagen et al. has now been relied upon, above, as providing a solvent with the catalyst injection.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa D. Neckel whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa D. Neckel
Examiner
Art Unit 1764

September 19, 2005

ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER